IBM DDS Generation 5 USB Tape Drive

IBM System x at-a-glance guide

The IBM DDS Generation 5 USB tape drive is the entry point into the IBM DDS tape drive family and offers dependable capacity and performance for value-conscious small and medium or distributed large enterprise businesses. DDS/DAT technology has the proven reliability and low cost of ownership to effectively meet the demanding backup, archival, and regulatory compliance requirements of your System x environment.

IBM DDS Generation 5 technology delivers a capacity of up to 72 GB on a single data cartridge and a transfer rate of up to 22 GB/hr (assuming a 2:1 compression ratio) at an entry price point. Its USB 2.0 interface supports internal plug and play capability with the latest System x systems, as well as external attachment in one of IBM's external tape drive enclosures. DDS Generation 5 technology is also backward read and write compatible with DDS-3 and DDS-4/DAT 40 media to ensure an easy migration or upgrade path for existing DDS/DAT users.

Figure 1 shows the DDS Generation 5 USB Tape Drive in its 5.25 inch form factor.

Figure 1. The DDS Generation 5 USB Tape Drive

Did You Know?

DDS/DAT products are built on a legacy of reliability and investment over many years. Reliability features include proven media, careful tape handling, two write heads for read-while-writing data verification, and advanced levels of error correction. DDS/DAT media is specified with a dependable shelf life in excess of 15 years, ideal for meeting today’s business and regulatory long-term archival requirements.

Part number information

Table 1 lists the ordering part numbers and feature codes.

Table 1. Ordering part numbers and feature codes

Description	Part number	Feature code
IBM DDS Generation 5 USB Tape Drive	46C5399	5711
IBM DDS Generation 5 Media 5-Pack Option	71P9158	Not available
IBM DDS Generation 5 Single Cartridge Option	59H4456	Not available

The part number for the DDS Generation 5 USB Tape Drive includes the following items:

- IBM DDS Generation 5 USB Tape Drive (5.25 inch form factor)
- Mounting screws
- CD-ROM containing the *DDS Generation 5 USB Tape Drive User's Guide*
- Cleaning cartridge
- Four USB cables for internal tape connectivity:
  - 14 inch USB cable with type 2x3 connector x3200 and x3200 M2
  - 28 inch USB cable with type B connector for x3400 and x3500
  - 12.5 inch USB cable with type 1x6 connector x3650 and x3655
  - 40 inch USB cable with type A locking connector for x3400 M2, x3500 M2, and x3650 M2, and other systems

The drive can be converted to a 3.5 inch form factor for use in some rack-optimized servers, which we describe later in the section "Internal installation."

Features

The DDS Generation 5 USB Tape Drive provides convenience and ease-of-use features while supporting high speed tape backup. The DDS Generation 5 USB Tape Drive provides the following features and capabilities:

- USB interface allows for direct internal connections with select System x servers
- Eliminates potential RAID conflicts and extra controllers
- 5.25 inch half-high form factor
- Drive can be converted to 3.5 inch form factor either in the factory (CTO) or in the field using the appropriate enablement kit
- Internal USB interface for simplified plug-and-play installation
- Optional DDS Tape Enablement kits allow for internal installation in select IBM System x rack-optimized servers
- Flexible external USB configuration offerings when used with desktop or 1U rack-mount enclosures
- Support for leading operating systems and popular backup software

Specifications

The DDS Generation 5 USB Tape Drive has the following specifications:

- Up to 36 GB native capacity, and up to 72 GB in compressed mode
- Up to 3.0 MBps native back-up rate, and up to 6.0 MBps in compressed mode
- USB 2.0 interface
- Read/write compatibility with DDS-4, and DDS-3 cartridges

Prerequisites

- Available internal or external USB port
- Available 5.25 inch half-high bay for internal installations
- Supported external tape enclosure for external attachment

Physical specifications

The DDS Generation 5 USB Tape Drive has the following physical specifications:

- Height: 41 mm (1.6 in)
- Width: 102 mm (4 in)
- Depth: 150 mm (5.9 in)
- Weight: 0.72 kg (1.6 lb)

Operating environment

The DDS Generation 5 USB Tape Drive is supported in the following environment:

- Temperature:
  - Operating: 5° to 40°C (41° to 104°F)
  - Non-operating: -40° to 70°C (-40° to 158°F)
- Relative humidity:
  - Operating: 20% to 80% (non-condensing)
  - Non-operating: 5% to 90% (non-condensing)
- Maximum altitude:
  - Operating: 0 m to 4600 m (0 to 15000 ft.)
  - Non-operating: 0 m to 15200 m (0 to 50000 ft.)

Warranty

The DDS Generation 5 USB Tape Drive has a one-year limited warranty on parts only. When installed in a System x server, this tape drive assumes your system's base warranty or external enclosure, and any IBM ServicePac upgrade.

The IBM DDS Generation 5 Media 5 Pack has a limited lifetime warranty.

Supported servers

The DDS Generation 5 USB Tape Drive is supported in the IBM System x servers listed in Table 2.

Table 2. Supported System x servers (Part 1)

Adapter	x3100 M3	x3200 M2	x3200 M3	x3250 M2	x3250 M3	x3350	x3400	x3400 M2	x3400 M3	x3455	x3500	x3500 M2	x3500 M3
DDS Generation 5 USB Tape Drive (external)	N	Y	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y
DDS Generation 5 USB Tape Drive (internal)	N	Y	Y	N	N	N	Y	Y	Y	N	Y	Y	Y

Table 2. Supported System x servers (Part 2)

Adapter	x3550	x3550 M2	x3550 M3	x3620 M3	x3650	x3650 T	x3650 M2	x3650 M3	x3655	x3755	x3850 M2	x3950 M2	x3850 X5
DDS Generation 5 USB Tape Drive (external)	N	Y	N	Y	Y	N	Y	N	Y	N	N	N	N
DDS Generation 5 USB Tape Drive (internal)	N	N	N	Y†	Y†	N	Y†	N	Y†	N	N	N	N

† To use the tape drive internally in these servers, the drive is converted to a 3.5-inch form factor, as described in the next section

See IBM ServerProven for the latest information about the devices supported by each System x server type: http://ibm.com/servers/eserver/serverproven/compat/us/

Internal installation

The DDS Generation 5 USB Tape Drive can be installed internally in specific servers as listed in Table 2. Except where noted, the DDS Generation 5 USB Tape Drive is installed in its standard 5.25-inch form factor.

As listed with a † symbol in Table 2, various servers support the tape drive mounted internally with the addition of a 3.5-inch tape enablement kit. The specific tape enablement kits that are supported are listed in Table 3.

Table 3. The 3.5-inch enablement kits for use with the DDS Generation 5 USB Tape Drive

Description	Part number	Feature code	x3620 M3	x3650	x3650 M2	x3655
IBM DDS Tape Enablement Kit	43V5959	5387 or 4873‡	N	Y	N	Y*
IBM System x3650 M2 RDX-DDS Tape Enablement Kit	49Y9883	7551	N	N	Y	N
Tape Enablement Kit option for IBM System x3650 M3	59Y3806	1746	N	N	N	N
IBM x3620 M3 Tape Enablement Kit	69Y0798	6419	Y	N	N	N

* The installation of IBM DDS Tape Enablement Kit in an x3655 is in the field only. Installation is not available as a factory installation (CTO) option.
‡ Feature 4873 is for 2.5 inch disk drive models of the x3650, 5387 is for 3.5 inch disk drive models of the x3650

Note: The System x3620 M3 and the Tape Enablement Kit option for IBM System x3650 M3, part number 59Y3806 are currently not supported.

See IBM ServerProven for the latest information about the devices supported by each System x server type: http://ibm.com/servers/eserver/serverproven/compat/us/

Figure 2 shows the tape drive installed in the IBM DDS Tape Enablement Kit. This kit converts the tape drive to a 3.5 inch form factor for installation in supported servers (see Table 2). An example of such installation is shown in Figure 6.

Figure 2. DDS Generation 5 USB Tape Drive converted to 3.5 inch form factor (required for installation internally in supported System x servers)

External use

The DDS Generation 5 USB Tape Drive can be connected externally to specific servers as listed in Table 2. To do so requires the use of one of the following supported enclosures, and as listed in Table 4:

- IBM 1U Rackmount Tape Enclosure
- IBM 4U Rackmount Tape Enclosure (withdrawn)
- IBM Half High Tabletop Tape Enclosure

Note: Each of these enclosures also requires an IBM USB Enclosure Adapter Kit, 44E8869, to route the USB cabling from the tape drive to the rear of the enclosure. The IBM USB Enclosure Adapter Kit includes the following components:

- USB adapter/connector
- One 3 m (12 ft) USB cable
- One 25 cm (1 ft) USB cable

Table 4. External enclosures for use with the DDS Generation 5 USB Tape Drive

Description	Part number	Feature code
IBM 1U Rackmount Tape Enclosure	87651UX (AG)* 87651NX (AP and EMEA)†	8765HC1 fc 2290
IBM 4U Rackmount Tape Enclosure (withdrawn)	87664UX (AG)* 87664NX (AP and EMEA)†	Not available (product is withdrawn)
IBM Half High Tabletop Tape Enclosure	8767HHX (AG)* 87671NX (AP and EMEA)†	8767HC1 fc 2287
IBM USB Enclosure Adapter Kit‡	44E8869	5396

* These models are for customers in the Americas Group (AG - Canada, U.S., and countries in South America). These models ship with a NEMA 5-15P line cord.
† These models are for customers in the countries known collectively as Asia Pacific (AP) and Europe, Middle East, Africa (EMEA). These models do not ship with a line cord.
‡ See the above note.

For the latest information about supported enclosures and kits, see:
http://ibm.com/servers/eserver/serverproven/compat/us/tape/39M5636.html

Figure 3 shows the tape drive installed in the left bay of the IBM 1U Rackmount Tape Enclosure (87651UX).

Figure 3. DDS Generation 5 USB Tape Drive installed in the 1U Rackmount Tape Enclosure (left bay)

Figure 4 shows the tape drive installed with an open view of the the IBM 1U Rackmount Tape Enclosure (87651UX). The configuration uses the USB Enclosure Adapter Kit, 44E8869, to route an external USB connection to the tape drive inside the enclosure.

Figure 4. DDS Generation 5 USB Tape Drive installed with an open view of the 1U Rackmount Tape Enclosure

Figure 5 shows the tape drive installed in the IBM Half High Tabletop Tape Enclosure (8767HHX).

Figure 5. DDS Generation 5 USB Tape Drive installed in the Half High Tabletop Tape Enclosure

Popular configurations

This section illustrates how the DDS Generation 5 USB Tape Drive can be used in configurations.

Internal installation in an x3650 M2 server

Figure 6 shows the DDS Generation 5 USB Tape Drive installed internally in an x3650 M2 server. This configuration uses the x3650 M2 RDX-DDS Internal Enablement Kit, which allows customers to replace four existing hot-swap disk drive bays with the USB tape drive. The enablement kit includes a bezel and assembly to convert the drive to a 3.5 inch tape drive.

Figure 6. The DDS Generation 5 USB Tape Drive installed internally in an x3650 M2 server

Table 5 lists the parts that are used.

Table 5. Components that are used when installing DDS Generation 5 USB Tape Drive into x3650 M2 server

Diagram reference	Part number/ machine type	Description	Quantity
1	7947	x3650 M2	1
2	49Y9883 (fc 7551)	x3650 M2 RDX-DDS Tape Enablement Kit	1
3	46C5399	DDS Generation 5 USB Tape Drive	1

Installation in a 1U external enclosure

Figure 7 shows the DDS Generation 5 USB Tape Drive installed in an IBM 1U Tape Drive External Enclosure and connected to a System x server.

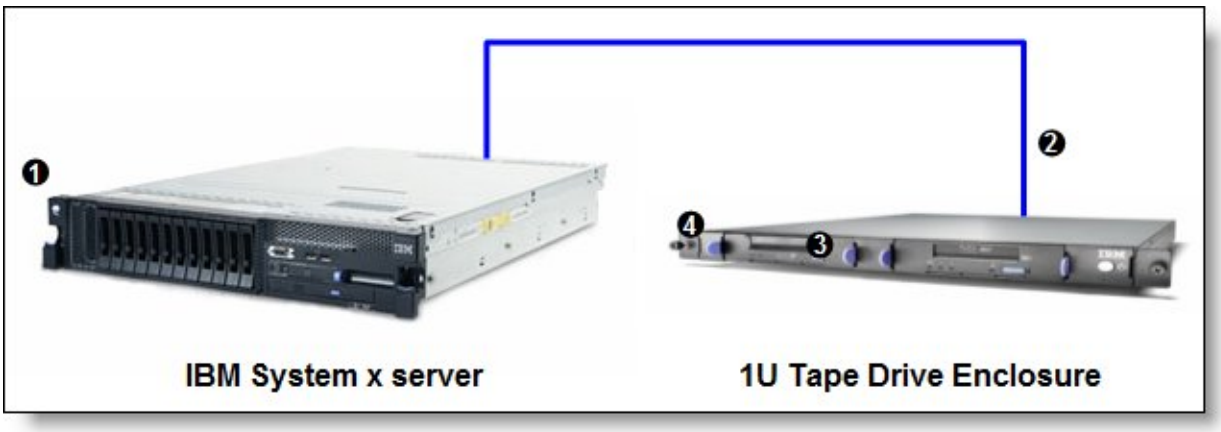

Figure 7. The DDS Generation 5 USB Tape Drive installed in an IBM 1U Tape Drive External Enclosure and connected to x3650 M2 server

Table 6 lists the parts that are used.

Table 6. Components used when connecting DDS Generation 5 USB Tape Drive installed in external tape drive enclosure to x3650 M2 server

Diagram reference	Part number/ machine type	Description	Quantity
1	Varies	Supported System x server	1
2	44E8869	USB Enclosure Adapter Kit	1 per drive
3	46C5399	DDS Generation 5 USB Tape Drive	1
4	87651UX	IBM 1U Tape Drive External Enclosure	1

Figure 8 shows the USB cable connection to the back of the IBM 1U Tape Drive External Enclosure. The USB cable is part of the USB Enclosure Adapter Kit.

Figure 8. The DDS Generation 5 USB Tape Drive connection to the back of the external tape drive enclosure.

Supported software products

The DDS Generation 5 USB Tape Drive supports the following software products:

- CA Brighstor
- Tivoli Storage Manager
- Symantec Backup Exec
- Symantec Net Backup

Supported operating systems

The DDS Generation 5 USB Tape Drive supports the following operating systems:

- SUSE Linux
- Red Hat Linux
- Microsoft Windows Server 2003
- Microsoft Windows Server 2008

See IBM ServerProven for the latest information on the specific versions and service packs supported: http://ibm.com/servers/eserver/serverproven/compat/us/. Select the blade server and then select the expansion card to see the supported operating systems.

Related publications

For more information, refer to the following resources:

- IBM US announcement letter for IBM DDS Generation 5 USB Tape Drive
  http://ibm.com/common/ssi/cgi-bin/ssialias?infotype=dd&subtype=ca&&htmlfid=897/ENUS109-591
- IBM DDS Generation 5 USB Tape Drive overview
  http://www.ibm.com/systems/storage/tape/ddsgenx/index.html
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- IBM DDS Generation 5 USB Tape Drive User's Guide
  http://www.ibm.com/support
- Recommended tape drive media list - IBM System x
  http://www.ibm.com/support/docview.wss?uid=psg1MIGR-5074910
- IBM Tape Storage Products Problem Determination and Service Guide
  http://www.ibm.com/support/docview.wss?uid=psg1MIGR-5079217
- Installation Guide for IBM 1U Rackmount Tape Enclosure
  http://www.ibm.com/support/docview.wss?uid=psg1MIGR-64787
- Installation Guide for IBM Half High Tabletop Tape Enclosure
  http://www.ibm.com/support/docview.wss?uid=psg1MIGR-64792
- Installation Guide for DDS Tape Enablement Kit
  http://www.ibm.com/support/docview.wss?uid=psg1MIGR-5072866
- System x tape software matrix
  http://www.ibm.com/support/docview.wss?uid=psg1TAPE-FILES

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